Report Date: 02 May 2016

113-SIG-3007
Configure Point-to-Point Connections to Enable Wide Area Network (WAN) Communication
Status: Approved

Condition: You have Cisco equipment on the premises and would also like to offer security and advanced TCP/IP options and controls on that same equipment by using the Point-to-Point Protocol (PPP). After researching the PPP protocol, you find it offers some advantages over the HDLC protocol, currently used on your network. You have 3 Cisco Routers (With Cisco IOS release 15.2(4)M3 universal image or comparable), 2 Cisco Switches (With Cisco IOS release 15.0(Z) lanbaseK9 image or comparable), 2 PCs (Windows 7, Vista, or XP with terminal emulation software), 1 console cable, 4 ethernet straight-thru cables, 2 serial DCE/DTE cables.

Standard: Configures serial interface and establish WAN communication.

Special Condition: None

Safety Risk: Low

MOPP 4:

Task Statements

Cue: None

DANGER

None

WARNING

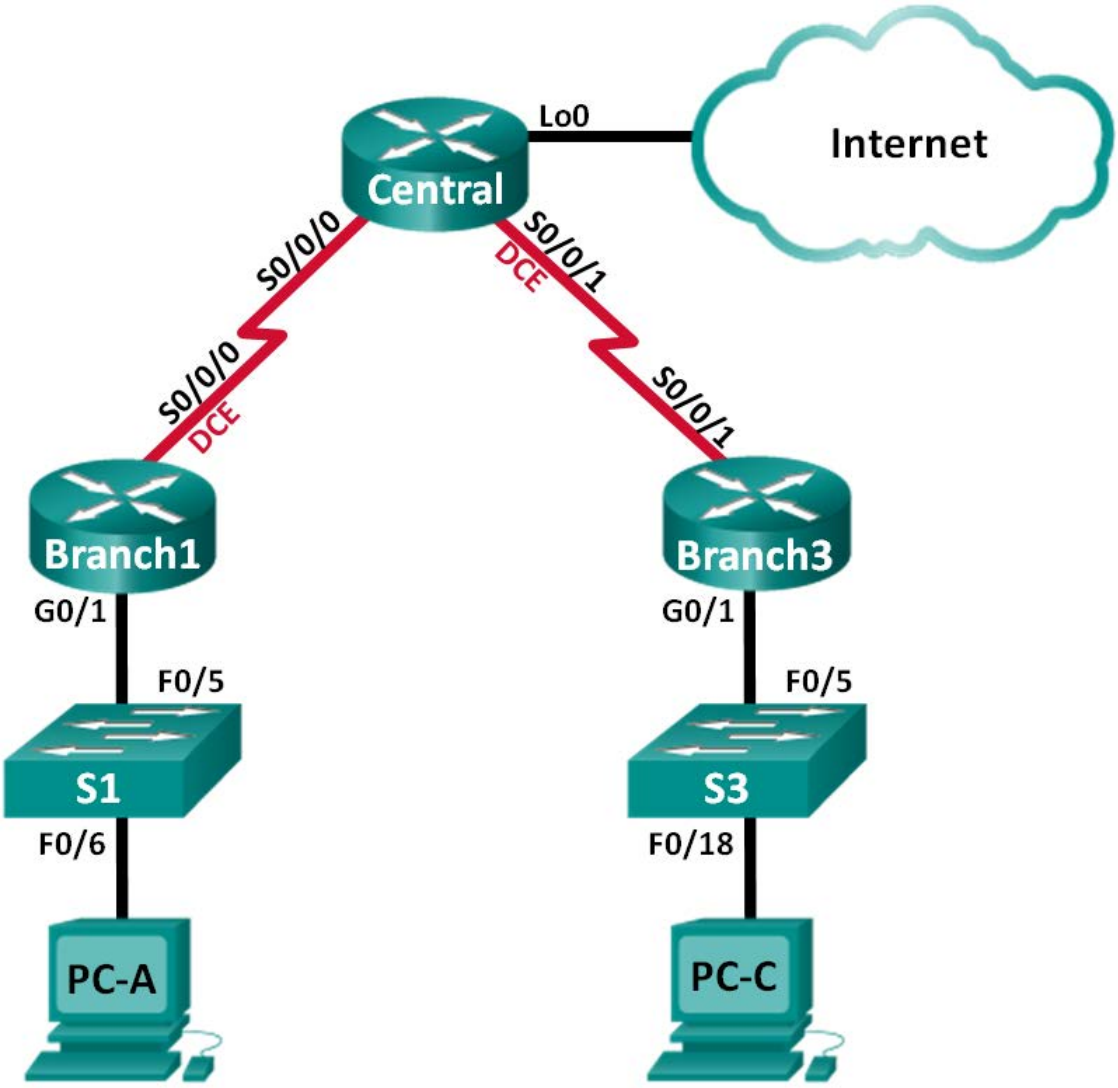
None

CAUTION

None

Remarks: None

Notes: All required references and technical manuals will be provided by the local Command via Cisco Networking Academy at www.netacad.com.



PPP Topology

Performance Steps

1. Cable the network as shown in the topology.

2. Initialize and reload the routers and switches.

3. Configure basic settings for each router.

   a. Disable DNS lookup.

   b. Configure the device name.

   c. Encrypt plain text passwords.

   d. Create a message of the day (MOTD) banner warning users that unauthorized access is prohibited.

   e. Assign class as the encrypted privileged EXEC mode password.

   f. Assign cisco as the console and vty password and enable login.

g. Set console logging to synchronous mode.

h. Apply the IP addresses to Serial and Gigabit Ethernet interfaces according to the Addressing Table and activate the physical interfaces.

i. Set the clock rate to 128000 for DCE serial interfaces.

j. Create Loopback0 on the Central router to simulate access to the Internet and assign an IP address according to the Addressing Table.

4. Configure routing

a. Enable single-area OSPF on the routers and use a process ID of 1. Add all the networks, except 209.165.200.224/27 into the OSPF process.

b. Configure a default route to the simulated Internet on the Central router using Lo0 as the exit interface and redistribute this route into the OSPF process.

c. Issue the show ip route ospf, show ip ospf interface brief, and show ip ospf neighbor commands on all routers to verify that OSPF is configured correctly. Take note of the router ID for each router.

5. Configure the PCs, assign IP addresses and default gateways according to the addressing table given.

6. Verify end-to-end connectivity using ping command and save configurations.

7. Configure PPP encapsulation.

a. Change the serial encapsulation to PPP for Branch 1 and Central routers, interface on s0/0/0, encapsulation ppp.

b. Verify interface S0/0/0 on both routers configured with PPP encapsulation, Branch1# show interfaces s0/0/0, Central# show interfaces s0/0/0.

c. Change the serial encapsulation for the link between the Central and Branch3 routers to PPP encapsulation, interface s0/0/1, encapsulation ppp.

d. Verify interface S0/0/1 on both routers configured with PPP encapsulation, Branch3# show interfaces s0/0/1, Central# show interfaces s0/0/1.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all steps are passed (P). Score the Soldier NO GO if any step is failed (F). If the Soldier fails any step, show what was done wrong and how to do it correctly.

Evaluation Preparation: Ensure that the equipment is available, serviceable, and ready for use. Use the reference and evaluation guide to score the Soldier's performance. Brief Soldier: Tell the Soldier what is required IAW the task condition and standards.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Cabled the network as shown in the topology.			
2. Initialized and reload the routers and switches.			
3. Configured basic settings for each router.			
4. Configured routing.			
5. Configured the PCs, assigned IP addresses and default gateways according to the addressing table given.			
6. Verified end-to-end connectivity using ping command and save configurations.			
7. Configured PPP encapsulation.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	ISBN: 9781587058820	Implementing Cisco IP Routing (ROUTE) Foundation Learning Guide: Foundation learning for the ROUTE 642-902 Exam (Foundation Learning Guides)	No	No

TADSS : None

Equipment Items (LIN): None

Materiel Items (NSN) :

Step ID	NSN	LIN	Title	Qty
	5895-01-539-4546	FA9516	Catalyst 2960 24 PT	2
	7025-01-581-2387	05004N	Cisco Integrated Router Gen 2: CISCO 2901/K9	3

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data

MOS 25B Information Technology Specialist Skill Levels 1, 2, 3, 4 and 5	Enlisted	MOS: 25B
MOS 25U Signal Support Systems Specialist Skill Levels 1, 2, 3, and 4	Enlisted	MOS: 25U
MOS 25C Radio Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25C
MOS 25Q Multichannel Transmission Systems Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25Q
MOS 25L Cable Systems Installer-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25L
MOS 25N Nodal Network Systems Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25N